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FISH & RICHARDSON, PC
P.O. BOX 1022
MINNEAPOLIS, MN 55440-1022

EXAMINER	
JARRETT, RYAN A	

ART UNIT	PAPER NUMBER
2121	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/766,512	ROSAKIS ET AL.	
	Examiner	Art Unit	
	Ryan A. Jarrett	2121	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *01 February 2008 and 14 May 2007*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *7,16,17,19,20,26 and 27* is/are pending in the application.

4a) Of the above claim(s) *16 and 26* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *7,17,19,20 and 27* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *01 February 2008* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

Applicant's election without traverse of claims 7, 17, 19, 20, and 27 in the reply filed on 08/07/06 is acknowledged.

Claims 16 and 26 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention and/or species, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on 08/07/06.

Drawings

The drawings were received on 02/01/08. These drawings are acceptable.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 7 and 20 are rejected under 35 U.S.C. 102(b) as being anticipated by Wikstrom et al., "Thermoelastic analysis of periodic thin lines deposited on a substrate" (provided by Applicant), hereinafter referred to as "Wikstrom". Wikstrom discloses:

7. A method for fabricating a layered structure on a substrate, comprising:

processing a substrate to form at least one dielectric layer on the substrate and parallel line features embedded in the dielectric layer (e.g., Fig. 1)**;**

obtaining local curvature information in an area of a line feature (e.g., Equations (6), (25): "e", Equation (5), *"e" is a function of curvature "k"*)**;**

obtaining local temperature information in the area of the line feature (e.g., Equations (6),(25): "ΔT")**; and**

using analytical expressions to compute local stresses (e.g., Equations (6),(25): "σ") **in the line feature from a first contribution based on the local curvature information** (e.g., Equations (6),(25): "e", Equation (5), *"e" is a function of curvature "k"*) **and a second, separate contribution based on the local temperature information** (e.g., Equations (6),(25): "ΔT")**, wherein the analytical expressions include geometry information of the line feature** (e.g., Fig. 1: "b", Equations (25)-(27))**, the dielectric layer** (e.g., Fig. 1: "t", Equations (25)-(27))**, and the substrate** (e.g., Fig. 1: "h", Equations (25)-(27))**, and material information of**

the line feature (e.g., Fig. 1: "Line: E_f, v_f, α_f", pg. 1120: "continuous film made of the same material as the line", Equations (25)-(27)), **the dielectric layer** (e.g., Fig. 1: "E_f, v_f, α_f", pg. 1120: "continuous film made of the same material as the line", Equations (25)-(27)) **and the substrate** (e.g., Fig. 1: "Substrate: E_s, v_s, α_s", Equations (25)-(27)).

20. A system, comprising:

a substrate holder to hold a substrate fabricated with a dielectric layer and parallel line features embedded in the dielectric layer (e.g., Fig. 1);

a sensing module to interact with the substrate to obtain information about a temperature (pg. 1123: "temperature change ΔT") **and curvatures of a line feature on the substrate** (e.g., pg. 1125: "curvature measurements"); **and**

a processing module (e.g., Equation (25)) **programmed with analytical expressions to compute local stresses** (e.g., Equations (6),(25): "σ") **in the line feature from a first contribution based on local curvature information in an area having the line feature** (e.g., Equations (6),(25): "e", Equation (5): *"e" is a function of curvature "k"*) **and from a second, separate contribution from local temperature information of the area having the line feature** (e.g., Equations (6),(25): "ΔT"), **wherein the analytical expressions include geometry information of the line feature** (e.g., Fig. 1: "b", Equations (25)-(27)), **the dielectric layer** (e.g., Fig. 1: "t", Equations (25)-(27)), **and the substrate** (e.g., Fig. 1: "h", Equations (25)-(27)), **and material information of the line feature** (e.g., Fig. 1: "Line: E_f, v_f, α_f", pg. 1120: "continuous film made of the same material as the line", Equations (25)-(27)), **the dielectric layer** (e.g., Fig. 1: "E_f, v_f, α_f", pg. 1120: "continuous film made of the same material as the line", Equations (25)-(27)) **and the substrate** (e.g., Fig. 1: "Substrate: E_s, v_s, α_s", Equations (25)-(27)).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 17, 19, and 27 rejected under 35 U.S.C. 103(a) as being unpatentable over Wikstrom as applied to claim 7 above, and further in view of WO 01/82335 A2. Wikstrom discloses:

27. A method, comprising:

providing a layered structure which comprises a plurality of layers stacked over one another, wherein each layer has embedded line features (e.g., Fig. 1, pg. 1114: "lines patterned onto various substrates and interlayers")**;**

~~**optically**~~ **obtaining information on a surface of the layered structure** (e.g., pg. 1125: "curvature measurements")**;**

processing the ~~**optically**~~ **obtained information to extract curvature information of the surface** (e.g., pg. 1125: "curvature measurements")**; and**

applying analytical expressions to compute local stresses (e.g., Equations (6),(25): "σ") **in a line feature from a first contribution based on extracted curvature information for an area having the line feature** (e.g., Equations (6),(25): "e", Equation (5): *"e" is a function of curvature "k"*) **and from a second, separate contribution based on a local temperature at a location of the line feature** (e.g., Equations (6),(25): "ΔT")**.**

Wikstrom does not explicitly disclose that the curvature information is obtained optically, per claim 27. Wikstrom also does not appear to explicitly disclose the features of claims 17 and 19.

WO 01/82335 A2 discloses:

17. The method as in claim 7, further comprising:

computing a critical value for a change in curvature according to a failure criterion of the layered structure by using the analytical expressions (e.g., pg. 33 lines 4-15: "Hence, when the difference either along or cross the line exceeds the acceptable level, the liability or performance of device may be considered as being unacceptable", *The "acceptable level" of curvature "difference" corresponds to the claimed "critical value for a change in curvature"*); **and**

controlling a condition during fabrication to make a change in curvature to be away from the critical value (e.g., pg. 33 line 22 – pg. 34 line 1: "Hence, one or more aspects of the fabrication or the design of the devices may be examined and modified to reduce the residual stresses within the acceptable range").

19. The method as in claim 7, further comprising adjusting a processing condition according to the computed local stresses (e.g., pg. 17 lines 1-4).

27. optically obtaining information on a surface of the layered structure (e.g., Fig. 1 #102: "Optical Detection Module");

processing the optically obtained information to extract curvature information of the surface (e.g., Fig. 1 #106: "Curvature Signal")

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Wikstrom with WO 01/82335 A2 since all the claimed elements were known in the prior art and one skilled in the art could have combined the elements as claimed by known methods with no change in their respective functions, and the combination would have yielded predictable results to one of ordinary skill in the art at the time of the invention.

It would have been further obvious to one having ordinary skill in the art at the time the invention was made to modify Wikstrom with WO 01/82335 A2 because the technique for improving a particular class of devices (i.e., improving a generic curvature measurement device by specifically require it to be an optical measurement device) was part of the ordinary capabilities of a person of ordinary skill in the art, in view of the teaching of the technique for improvement in other situations.

Response to Arguments

Applicant's arguments, see pages 12-15, filed 05/14/07, and pages 6-9, filed 02/01/08, with respect to the rejection(s) of claim(s) 7, 17, 19, 20, and 27 under 35 USC 102(b) as being anticipated by WO 01/82335 A2 have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Wikstrom. Wikstrom discloses calculating stress from a first contribution based on curvature and a second, separate contribution based on temperature (e.g., Equations (6),(25)).

Response to Amendment

Applicant's request for reconsideration of the finality of the rejection of the last Office action is persuasive and, therefore, the finality of that action is withdrawn. However, it is noted that once the finality of the Office action has been withdrawn, the next Office action may be made final if the conditions set forth in MPEP § 706.07(a) are met. Such is the case here, since applicant's amendment filed 05/14/07 necessitated the new ground(s) of rejection presented in this Office action.

Conclusion

Applicant's amendment filed 05/14/07 necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ryan A. Jarrett whose telephone number is (571) 272-3742. The examiner can normally be reached on 10:00-6:30 M-F.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Ryan A. Jarrett/
Primary Examiner, Art Unit 2121

03/27/08